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shield fern still had green patches and one frond, protected by the leaf-covering, was green and living.

Among the curiosities developed in the fern garden were a forked frond of the silvery spleenwort, a forked and crested frond of the marginal shield fern, and several forked fronds of the New York fern.

KUTZTOWN, PA.

Notes and News

In the course of a collecting trip made through Curry County, Oregon, in June, 1917, in company with Professor M. E. Peck of Willamette University, we were fortunate enough to find a very beautiful *Adiantum* which was determined by Mr. J. Francis Macbride of the Gray Herbarium as *A. Jordani* Mueller. The specimen was growing in very dry rocky soil on the north side of the canyon of Rogue River, a few miles below the mouth of Mule Creek, near the deserted mining camp of Solitude Bar. As this species is not mentioned in Professor Sweetser's "Popular Description of the Common Oregon Ferns" (1913), and no specimen of it is included in the herbarium of the University of Oregon, I was inclined to think at first that this was its first occurrence in the State. The range given in Eaton's *Ferns of North America* (I, 286), where it is described as *A. emarginatum* Hook., is "From San Diego, California, to Oregon"; but no specimen to confirm its occurrence in this State is cited. There is, however, in the herbarium of the University of California a specimen collected by Thomas Howell "in the Umpqua Valley, June 20, 1887." Since Eaton's first volume appeared in 1879, this specimen of Howell's cannot be the authority on which Eaton based his reference of the species to Oregon. I can find no collector who has seen it here recently. My own specimen

was collected about fifty miles north of the California line; Howell's specimen still further to the northward. I should be glad to know if any other collector has found this beautiful Californian fern within the limits of Oregon, or if any specimen anterior to Howell's is in existence to confirm Eaton's reference of it to this State.¹

J. C. NELSON

In the most recent manual covering that part of Oregon west of the Cascades (Piper and Beattie's Flora of the Northwest Coast) the range of *Ceropteris triangularis* (Kaulf.) Underw. is stated as being "mostly near the sea-coast." My own observation leads me to the conclusion that this is slightly misleading, as tending to give the impression that it is not common elsewhere. During the last three seasons I have collected it throughout the whole length of the Willamette Valley from Eugene northward, more than sixty miles from the coast in an air-line, and separated from it by the main chain of the Coast Range. Not only does it occur on the east slopes of this range, but it has crossed the wide alluvial prairies of the Willamette Valley and is frequent in the foot-hills of the Cascades. It is abundant on Spencer's Butte, an isolated rocky hill seven miles south of Eugene, where may be found nearly every species of fern native to Oregon; there is a considerable colony of it on a rocky oak-covered hillside at Turner in Marion County, on the east side of the Willamette Valley; it is not infrequent in rocky woods and pastures about Salem, also on the east side

¹ Mr. A. F. Hill, of Yale University, has very kindly looked up this matter for us. He finds in the D. C. Eaton herbarium a sheet of *A. Jordani* collected in Oregon in 1871 by Elihu Hall—No. 677 of the *Plantae Oregonenses*. This is probably the specimen on which Eaton based his statement. The label gives no more definite locality than Oregon.—ED.

of the Valley; and it occurs on Elk Rock, just south of Portland. There is no question here of following a river-valley, as it seems to have done along the Rogue River in southwestern Oregon; it would have had to ascend the Columbia for a hundred miles to the mouth of the Willamette, and up that stream another hundred and twenty-five miles to reach some of the stations. I am inclined to believe that as far as its occurrence in Oregon is concerned, it is in no way dependent on the proximity of the coast, but is just as likely to occur in the interior as along the littoral.

J. C. NELSON

At the invitation of Mr. Rugg and Mr. Underwood I made a brief trip to Windsor County, Vermont, early in July with the purpose of testing the accuracy of my prediction¹ that the Male Fern would be found above 2000 feet on many of the higher hills of central and northern Vermont.

From the contour map we selected two hills of over 2400 feet, one in Woodstock and the other in Reading, and with the aid of Mr. Underwood's automobile we visited them on the 2nd and 3rd of July. Several plants of the Male Fern grew near the summit of each. The Reading station is, as far as reports are available the most southerly in New England.

E. J. WINSLOW

THE MALE FERN AT OWEN SOUND, ONTARIO.—Perhaps twenty years ago there was discovered at this station, by a local botanist, Mrs. Roy, of Royston Park, a new fern, which, at that time, was written up in our local papers as something quite unusual for this

¹ See Fern Journal. 7: 89.

locality, but I have been unable through local sources to discover the name of the fern mentioned.

I wrote of this matter to Mr. A. J. Morris, a botanist of more than local reputation, of Peterborough, Ontario, who spent two weeks botanizing in this locality three years ago, and he included with his reply among other things a fine specimen of "*Aspidium filix-mas*" which he says he took at Royston Park while on the trip just mentioned, and indicated the location as being in the rear of the Rifle Butts, below the Limestone Cliff, west of Owen Sound.

At the first opportunity I drove out to the location indicated, and found directly four lusty plants, full-sized, fertile and sterile, but a little late in the season to take perfect and unblemished specimens. I have not taken time as yet to thoroughly search the talus slope to adequately estimate the size of this station, but will do so very shortly.

The plants grow on rather large sized limestone rock talus, on a slope not wider than 100 yards, in front of a 60-foot cliff, facing east, and are not in deep shade. The trees are mostly Beech, Maple, and a few Cedar, rather open and scattered, letting in a good illumination from above, and will be shaded by the cliff from the hot afternoon sun. They neighbor *Polystichum lonchitis*, *Scolopendrium vulgare* and *Aspidium marginale*, and more splendid specimens of either I have seldom seen.

The elevation above sea level is 799 feet, much lower, I believe, than is their usual habitat.

It appears not a little strange that I had systematically searched for three years for this elusive fern and curiously enough have been within a few hundred yards of it at different times without examining the exact slope where it deigned to dwell.

W. R. MCCOLL

MOSTLY INTERROGATIONS.—A novice in fern collecting, like any other hobby, fad, or pastime, naturally gropes around for condensed information and reliable assistance along the special line selected; and like the mercantile shopper wants the most of the best for the least, in the shortest and easiest way; and usually gets what he goes after if average judgment is used in the acquisition.

Lacking much that appeared essential in fern lore and herbarium methods I have taken much time and some trouble to absorb and digest about eight or ten volumes of the "Fern Bulletin" and "American Fern Journal" which were handed to me for perusal by a former subscriber to both; all of which I must say I intensely enjoyed as it only whetted an already sharpened appetite for the subjects in question.

But the items which I was specially interested in failed to materialize. I found, however, one thoughtful editor (I think it was Prof. E. J. Winslow) who said in his inaugural address, "if you do not know, please ask questions, as most of us like to be questioned."

That gentleman certainly understood the requirements of a novice, and I shall follow his kindly advice and ask a few.

First, what is considered the best way to press ferns? What amount of pressure is thought to be desirable, and how most easily applied? What advantage has felt over paper for press driers, and what size is usually used? Will good carpet felt answer? How long should a fern remain in press before changing driers? Are slats, say one inch apart, on top and bottom of press considered better than plain boards, and why? Can anyone manage to press *Athyrium thelypteroides*, *Onoclea sensibilis*, or *Athyrium Filix-foemina* without discoloration, and how? That will do for this time, but I may return again for help; I will not, however, ask so much without returning at least a little.

Spring will be with us and the fern fiddleheads peeping through the soil along with the quarterly delivery of the "American Fern Journal" for 1918, and some may be unable to find suitable conditions in the home garden to satisfy the water-loving ferns, such as *Osmunda regalis*, *O. cinnamomea*, *Aspidium thelypteris*, and possibly a few others, to give them regularly the moisture to which they have been accustomed under normal conditions.

Sink in the garden in a suitable place a deep crockery pan or crock allowing the edge to come within two inches of the soil level; line the bottom with brick or crock pieces for drainage, upon which spread a good thick layer of turfy peat; set your fern upon this foundation and fill to ground level with swamp earth or boggy mould such as these ferns grew in.

This treatment allows the plant to absorb gradually and steadily all the moisture from each rainfall and the same conditions prevail when hand or hose watering is found necessary during dry spells.

For the trouble incurred you will be amply repaid with thoroughly thrifty and healthy plants. If success has not crowned your former efforts try this plan, and enjoy in your home fern garden the regal beauty of the *Osmunda* family, and any fern that likes a similar habitat.

These delightful fronds are lacking in too many ferneries, simply because their treatment in the new environment has been inadequate to guarantee satisfactory results.

W. R. McCOLL

Certainly we like to be asked questions and will try to answer Mr. McColl's. The best way to press ferns, or any other plants, is in folded sheets of unglazed paper, between driers of heavy felt paper. The folded sheets permit the specimen to be handled when changing driers without disturbing its position; and felt paper is

at once softer and more absorbent than other kinds. The present writer is wont to apply the initial pressure with his foot and, in the absence of recording instruments, is not very sure how much he gets; from forty to sixty pounds is recommended. Stiff, thick, intractable plants take more than thin and delicate ones, and many plants pressed at once more than a few. Some of the best fern specimens I ever saw were made by piling stone paving blocks on top of the press; straps passed around it and pulled tight (especially canvas trunk-straps with buckles which will take hold anywhere, without waiting for a hole to come along) give good results; my own pet press has coarse-threaded wooden screws, taken from some old carpenter's clamps. The usual size for driers is about 12 by 17 or 18 inches—a little larger than the standard herbarium sheet. The first change of driers should be made not longer than 24 hours after the specimens are put in press. Slats are better than solid boards for the top and bottom of the press because they permit a more rapid evaporation of moisture. The species mentioned, or any other of our native ferns, can be pressed without discoloration if the driers are changed often enough. As a general rule, the faster the drying process, the better the resultant specimens. Finally, it may be remarked that there is a popular book, entitled "Plant Preservation" and published by the F. A. Stokes Co., New York, which gives rather full directions for pressing plants.

C. A. W.

Prince Roland Bonaparte is constantly receiving, in his great fern herbarium, numbered collections from various sources and from many different regions, some specimens of which are, inevitably, either wrongly identified or sent out without names. He has undertaken to determine these misnamed or nameless specimens, describing new species and varieties where necessary, and to publish the results for the benefit of others who may have sets of the same collections, in a series of brochures which he calls "Notes Ptéridologiques."² Four fascicles have already been issued, comprising nearly 700 pages and dealing with species

²Le Prince Bonaparte. Notes Ptéridologiques. Paris. Fascicule I, pp. 230, July 14, 1915. II, pp. 219, Dec. 2, 1915. III, pp. 27, Dec. 3, 1916. IV, pp. 123, May 19, 1917.

from almost all parts of the world. Their usefulness to owners and curators of large collections is obvious; to such, Prince Bonaparte is doing a real and generous service.

M. Henri Gadeau de Kerville of Rouen has published, in two beautifully printed pamphlets, illustrated with fine photogravure plates, five "Notes sur les Fougères."³ Note 1 is a comparative list of the species of ferns occurring in Europe, France and Normandy. 74 species, two of them doubtful, are listed from Europe: 50 from France and 25 from Normandy. These totals may be compared with our 64 from the Gray's Manual region, and 115 from that covered by Small's Flora of the southeastern United States. In note 2, the author protests against the bestowing of scientific varietal names on minor, often abnormal variations in leaf-form. He gives point to his protest by relating how he produced no less than three named "varieties" from a single clump of normal, wild hart's-tongue by simply transplanting it to his conservatory; and that the "varieties" showed a strong tendency to return to the normal form as they became used to their new environment. Note 3 deals with experiments in growing 22 species of ferns in complete darkness—a condition in which ferns, unlike most other plants, are able to produce some chlorophyll. The coloration of scales also remains normal. Some individuals remained alive for as long as five years without a ray of light. All which lived at all produced abnormally long, weak stipes and rudimentary fronds, which, in the case of simple fronds, did not progress beyond the crozier stage. Note 4 contains a table, showing the altitudinal

³ Gadeau de Kerville, Henri. Notes sur les Fougères. Extraits du Bulletin de la Société des Amis des Sciences naturelles de Rouen. 1 and 2, pp. 139-166, pls. 4 and 5. 1913 (reprint, 1915). 3, 4 and 5, pp. 161-214, pls. 10-23. 1914-5 (reprint, 1917).

distribution of French ferns. Eight species reach altitudes above 2500 meters. These are *Woodsia alpina*, *Cystopteris fragilis*, *C. montana*, *Dryopteris Filix-mas*, *D. spinulosa*, *Polystichum Lonchitis*, *Asplenium viride* and *Cryptogramma crispa*. It is interesting to note that all of these occur in North America, with the exception of the last, which is represented here by the closely related *Cryptogramma acrostichoides*. Five species, *Trichomanes radicans*, *Hymenophyllum tunbridgense*, *H. peltatum*, *Asplenium marinum* and *Pteris cretica* are found only below 500 meters, and of these none occurs certainly in North America, though a *Trichomanes* of the southeastern United States has been referred to *T. radicans*. Note 5 deals with the inrolling of growing fronds in certain plants of the hart's-tongue, a phenomenon which M. Gadeau de Kerville believes to be due to some abnormality in the structure of the plant which prevented a sufficient supply of water from reaching the leaf-tissue.

C. A. W.

AMERICAN FERN SOCIETY
ANNUAL REPORTS OF THE SOCIETY
Report of the President for 1917

In accepting this office it seemed to me that besides exercising such general knowledge of the Society's affairs as seemed possible, I should be present at its yearly meetings. Accordingly I made it a point to be present at the meeting in Brooklyn on the evening of December 29 and to exhibit and talk on some specimens from my collection. The meeting was thoroughly enjoyed by all present and I am sure that no one regretted their attendance and that all were well pleased by the hospitality of the Brooklyn Botanical Gardens and its accomplished representative, Dr. Benedict. A very interesting and with us a popular exhibit was